

AMENDED CLAIMS

- 1 1. (currently amended) A method of determining a resistivity parameter of interest
2 of an anisotropic earth formation, the method comprising:
3 (a) obtaining a plurality of unfocused differential array resistivity
4 measurements (a lateral log) over a depth interval;
5 (b) obtaining a plurality of ~~induction~~ additional resistivity measurements ~~with~~
6 ~~an induction logging tool~~ over said depth interval;
7 (c) processing said plurality of unfocused differential array resistivity
8 measurements and said plurality of ~~induction~~ additional resistivity
9 measurements and obtaining therefrom said parameter of interest, said
10 processing excluding an inversion of said ~~induction~~ additional resistivity
11 measurements.
- 1 2. (currently amended) The method of claim 1 wherein said parameter of interest
2 comprises at least one of (i) a mean resistivity of said earth formation, (ii) a
3 vertical resistivity of said earth formation, and (iii) a horizontal resistivity of said
4 earth formation..
- 1 3. **canceled**
2
- 1 4. **canceled**
2
- 1 5. (currently amended) The method of claim 1 wherein said plurality of ~~induction~~
2 additional measurements comprises focused measurements.

10/674,204

1 6. (original) The method of claim 1 wherein said processing further comprises
2 applying a borehole correction and an invasion correction to said lateral log.
3

1 7. (currently amended) The method of claim 1 wherein said processing further
2 comprises applying a borehole correction and an invasion correction to said
3 ~~induction~~ additional resistivity measurements and obtaining a horizontal
4 resistivity.
5

1 8. (currently amended) The method of claim 7 further comprising determining an
2 anisotropy factor from a mean resistivity and a said horizontal resistivity.
3

1 9. (original) The method of claim 1 further comprising making measurements with a
2 micro-laterolog and using said micro-laterolog measurements in said processing.
3

1 10. (currently amended) An apparatus for use in a borehole in an anisotropic earth
2 formation for determining a resistivity parameter of said earth formation, the
3 apparatus comprising:

- 4 (a) an unfocused differential array resistivity measuring device ~~for obtaining~~
5 which obtains a plurality of unfocused differential resistivity
6 measurements (a lateral log) over a depth interval;
- 7 (b) ~~an induction~~ a resistivity measuring device ~~for obtaining~~ which obtains a
8 plurality of ~~induction~~ additional resistivity measurements over said depth
9 interval;

10/674,204

10 (c) a processor ~~for processing which processes~~ said plurality of unfocused
11 differential array resistivity measurements and said plurality of ~~induction~~
12 additional resistivity measurements and obtaining therefrom obtaining said
13 parameter of interest, said processing excluding an inversion of said
14 ~~induction log~~ additional resistivity measurements.

15

1 11. (currently amended) The apparatus of claim 10 wherein said parameter of interest
2 is selected from the group consisting of (i) ~~comprises~~ a vertical resistivity of said
3 earth formation, and (ii) a horizontal resistivity of said earth formation.

4

1 12. **canceled**

2

1 13. (currently amended) The apparatus of claim 10 wherein said plurality of ~~induction~~
2 additional measurements comprises focused measurements.

3

1 14. (original) The apparatus of claim 10 wherein said processor further applies a
2 borehole correction and an invasion correction to said lateral log.

3

1 15. (currently amended) The apparatus of claim 14 wherein said processor further
2 ~~comprises~~ applies a borehole correction and an invasion correction to said
3 ~~induction log~~ additional resistivity measurements and obtains a horizontal
4 resistivity.

5

10/674,204

1 16. (original) The apparatus of claim 15 wherein said processor further determines an
2 anisotropy factor from a mean resistivity and said horizontal resistivity.

3

1 17. (original) The apparatus of claim 10 further comprising making measurements
2 with a micro-laterolog and using said micro-laterolog measurements in said
3 processing.

4

1 18. (original) The apparatus of claim 10 wherein said processor performs said
2 processing substantially in real time.

3

1 19. (original) The apparatus of claim 10 wherein said processor is at a surface
2 location.

3

1 20 (original) The apparatus of claim 10 wherein said processor is at a downhole
2 location.

3

1 21. (currently amended) The apparatus of claim ~~10~~ 31 wherein said induction
2 resistivity device is an array device.

3

1 22. (currently amended) The apparatus of claim ~~10~~ 31 wherein said induction
2 resistivity device comprises a plurality of coils with an axis substantially parallel
3 to an axis of said resistivity device.

4

10/674,204

- 1 23. (currently amended) A system for use in a borehole in an anisotropic earth
2 formation for determining a resistivity parameter of said earth formation, the
3 system comprising:
- 4 (a) an unfocused differential array resistivity measuring device ~~for obtaining~~
5 which obtains a plurality of unfocused differential resistivity
6 measurements (a lateral log) over a depth interval;
- 7 (b) ~~an induction a~~ resistivity measuring device ~~for obtaining which obtains a~~
8 plurality of ~~induction~~ additional resistivity measurements over said depth
9 interval;
- 10 (c) a processor ~~for processing which processes~~ said plurality of unfocused
11 differential array resistivity measurements and said plurality of ~~induction~~
12 additional resistivity measurements and ~~obtaining estimates~~ therefrom
13 ~~obtaining~~ said parameter of interest, said processing excluding an
14 inversion of said ~~induction~~ additional resistivity measurements; and
- 15 (d) a conveyance device ~~for conveying which conveys~~ said unfocused
16 differential array resistivity measuring device and said ~~induction~~ resistivity
17 measuring device into said borehole.

18

- 1 24. (currently amended) The system of claim 23 wherein said conveyance device
2 is selected from the group consisting of (i) comprises a wireline, and (ii) a drilling
3 tubular.

4

- 1 25. **canceled**
10/674,204

2

1 26. **canceled**

2

1 27. (original) The system of claim 23 wherein said processor is at a surface location.

2

1 28. (original) The system of claim 23 wherein said processor is at a downhole
2 location.

3

1 29. (currently amended) The system of claim 23 32 wherein said induction device
2 comprises coils with axes substantially parallel to an axis of the borehole.

3

1 30. (new) The method of claim 1 wherein the plurality of additional resistivity
2 measurements comprises induction measurements.

3

1 31. (new) The apparatus of claim 1 wherein said resistivity measuring device
2 comprises an induction device.

3

1 32. (new) The system of claim 23 wherein said resistivity measuring device
2 comprises an induction device.

10/674,204